

REMARKS

In the above-identified Office Action, the Examiner has rejected claims 8 and 10 under 35 U.S.C. §112 stating that there is no support in the specification for an "oxide film". Applicant disagrees with this, noting on page 11, last line, where it speaks of an "oxidative heat treatment" and on page 16, line 10, where it refers to an "oxide film thickness". As a result, Applicant believes that there is support in the specification for the element "oxide film" and requests withdrawal of this rejection.

The Examiner has also noted that there is insufficient antecedent basis for the term "the voltage" in line 3 of claim 8 and line 5 in claim 10. Applicant notes that there is no line 5 in claim 10 and in fact there is no term "the voltage" in claim 10. With regard to claim 8, Applicant has amended claim 8, and as such believes the claim now to be definite in that regard. Further, the Examiner has questioned the clarity of the phrase "and an oxide film withstand the voltage is 60% or higher at a C mode ratio". Applicant intends that this phrase mean an amount of oxide film having a dielectric breakdown voltage withstand property which is 60% or higher in a C mode ration. Applicant has amended the language to make the language of claims 8 and 10 to make this meaning clearer and as such believes the claim to now be definite in this regard.

Claims 7 -10 and 13-14 have been rejected under 35 U.S.C. §102(e) as being anticipated by Iida et al. The Examiner contends that (1) Iida et al. teaches a $G_c=30^{\circ}\text{C}/\text{cm}$ and $G_e=35^{\circ}\text{C}/\text{cm}$ (Fig. 8), where the G_e/G_c ratio can be determined to be 1.16, which corresponds to paragraph (1) of claim 7; and (2) in Fig. 10(A) of Iida et al., the pulling speed of about 0.62mm/min corresponds to paragraph (2) of claim 7.

Applicant notes that, as described in column 10, lines 45-56 of Iida et al., and shown in Fig. 8 is the range of G_c and G_e for achieving an entire N zone (corresponding to the defect free zone of the present invention) at a quick growth speed. Thus, in Iida et al., the values $G_c=30^{\circ}\text{C}/\text{cm}$ and $G_e=35^{\circ}\text{C}/\text{cm}$ are described as the values for generating a defect free zone of Iida's invention.

On the other hand, the value described in paragraph (1) of claim 7 is the values for forming a void defect zone (corresponds to the V-RICH in Iida et al., different from the Nzone).

Thus, claim 7 of the present invention recites the values for generating a void defect zone,

whereas Iida et al. show the values for generating a defect free zone.

Further, as described in Iida et al., column 14, lines 39-54, Fig. 10(A) shows a result when G_c is $42^\circ\text{C}/\text{cm}$ and G_e is $45^\circ\text{C}/\text{cm}$, not the result when $G_c=30^\circ\text{C}/\text{cm}$ and $G_e=35^\circ\text{C}/\text{cm}$.

When the values $G_c=42^\circ\text{C}/\text{cm}$ and $G_e=45^\circ\text{C}/\text{cm}$ are used, the result becomes

$G_{1\text{edge}}/G_{1\text{center}}=45/42=1.07$. This result does not come within the parameters of paragraph (1).

From the above, it can be seen that Iida et al. does not teach or suggest the invention of claim 7. This also applies to claims 8-10 and 14, since these claims are dependent from claim 7.

Claims 13-14 have been rejected under 35 U.S.C. §102(e) as being anticipated by the patent to Hourai et al. Applicant has canceled claim 13 and accordingly, this rejection is considered obviated. Claim 14 is dependent upon claim 7 which has not been rejected under Hourai et al., and otherwise patentable as set forth above, and accordingly, believes that claim 14 should therefore also be allowable.

Claim 3 has been rejected under 35 U.S.C. §103(e) as being obvious over Hourai et al. and Iida et al., and further in view of Luter et al. The Examiner has stated that it would have been obvious to a person of ordinary skill in the art to modify Hourai et al. or Iida et al. with Luter et al. to avoid undesired changes in the thermal profile during the growth process.

The invention of claim 3 as now amended, recites the value of $G_{\text{outer}}/G_{\text{center}}$ when changing the position of the heat shielding member. The technique of Hourai et al., on the other hand, is to change a pulling speed, and the value shown in Hourai et al. is a V/G value which is set assuming that the pulling speed V is also changed. The technique of Luter et al. is to change the position of a heat shielding member. The combination of the techniques of Hourai et al and Luter et al requires one to change the pulling speed and the position of the heat shielding member. Therefore, even if the $G_{\text{outer}}/G_{\text{center}}$ of claim 3 of the present invention is calculated using the V/G value in Hourai et al., the value obtained by this calculation and the value in the twice amended claim 3 differ from each other in their meaning and cannot be compared.

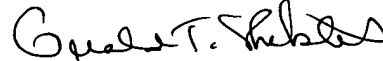
According to the invention of the twice amended claim 3, it is possible to stably provide a defect free zone without changing the pulling speed. This advantageous effect cannot be achieved by the techniques of Hourai et al. and Luter et al.

Applicant hereby requests reconsideration and re-examination thereof.

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With the above amendments and the remarks, this application is considered ready for allowance, and Applicants earnestly solicit an early notice of same. If the Examiner believes that a telephone conference would expedite prosecution of the subject application, he is respectfully requested to call the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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